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REMARKS

Claims 1-12 and 37-40 are all the claims pending in the application. Claims 13-36 have been canceled and claims 37-40 have been added, above. Claims 2 and 3 have been withdrawn from consideration. Claims 1, 4-12 stand rejected on prior art grounds. In addition, the Abstract is objected to. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1 and 4 stand rejected under 35 U.S.C. §102(b) as being anticipated by Utsunomiya et al., hereinafter Utsunomiya (U.S. Patent 6,207,996). Claims 5-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Utsunomiya in view of Kato (U.S. Patent Pub. 2002/0050617). Applicants respectfully traverse these rejections based on the following discussion.

A. The Rejection Based on Utsunomiya

Applicants respectfully traverse this rejection because Utsunomiya does not teach many features of the claimed invention. For example, Utsunomiya does not teach or suggest that "said shunt and said compensating conductor perform no function other than eliminating said potential for charging damage" as defined by independent claim 1.

More specifically, Utsunomiya discloses a protection circuit 104 that is connected to an input/output pad 103 and to ground. There is no compensating conductor that performs no function other than eliminating the potential for charging damage. To the contrary, the conductor 103 and the ground all serve multiple purposes including the input/output of signals and the operation of providing a ground contact for multiple

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devices. Thus, it is Applicants position that Utsunomiya does not teach or suggest the invention as defined by independent claim 1.

It is possible to create a differential antenna by the arrangement of vias within the metal line. Vias placed in narrow metal lines have a larger aspect ratio than vias placed well within large metal plates, and may therefore charge to a different potential when exposed to a plasma. This occurs in either via-first or trough-first processes, although the specific sensitive process then varies. If the gate and source/drain have different via/metal configurations, then charging damage can occur. To address this problem, the invention traces electrical nets assuming that metals and diffusions (even when they are cut by an FET gate) are conductive, determines the characteristics of the charge-collecting antennas on each node of each FET, assesses the potential for charging damage on each device. Where appropriate, a shunt device and/or a compensating antenna, connected through a series device, is placed to eliminate the potential for charging damage.

The invention adds the series devices and conductive features to balance the antenna affects due to via configuration differences. Series devices and conductive features may be added to compensate for other differences such as proximity of conductive lines, uneven positioning within the chip, etc. In addition, other devices such as large FETs can be added to compensate for other unbalances, including parasitic capacitance. The compensating devices and conductive shapes are added to the circuit to eliminate the potential for charging damage between the source/drain and the gate of the SOI transistor. Further, these devices and compensating structures perform no function other than eliminating the potential for charging damage.

Thus, as shown above, Utsunomiya does not teach or suggest "said shunt and said compensating conductor perform no function other than eliminating said potential for charging damage" as defined by independent claim 1. Thus, it is Applicants position that independent claim 1 is patentable over Utsunomiya. Similarly, dependent claim 4 is also patentable, by virtue of the additional features dependent claim 4 defines and by virtue of its dependency from patentable independent claim 1. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdrawn this rejection.

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B. The Rejection Based on Utsunomiya and Kato

Applicants respectfully traverse this rejection because neither Utsunomiya nor Kato teach many features of the claimed invention. For example, neither Utsunomiya nor Kato teach or suggest that "said shunt and said compensating conductor perform no function other than eliminating said potential for charging damage" as defined by independent claim 1 or "said series device and said compensating conductor perform no function other than eliminating said potential for charging damage" as defined by independent claim 7.

More specifically, Utsunomiya discloses a protection circuit 104 that is connected to an input/output pad 103 and to ground. Similarly, Kato discloses a protection circuit 6 that is connected to an input/output pad 3 and to ground 2, 5. There is no compensating conductor that performs no function other than eliminating the potential for charging damage in either reference. To the contrary, the conductors 103, 3 and the ground all serve multiple purposes including the input/output of signals and the operation of providing a ground contact for multiple devices. Thus, it is Applicants position that Utsunomiya does not teach or suggest the invention as defined by independent claims 1 and 7.

It is possible to create a differential antenna by the arrangement of vias within the metal line. Vias placed in narrow metal lines have a larger aspect ratio than vias placed well within large metal plates, and may therefore charge to a different potential when exposed to a plasma. This occurs in either via-first or trough-first processes, although the specific sensitive process then varies. If the gate and source/drain have different via/metal configurations, then charging damage can occur. To address this problem, the invention traces electrical nets assuming that metals and diffusions (even when they are cut by an FET gate) are conductive, determines the characteristics of the charge-collecting antennas on each node of each FET, assesses the potential for charging damage on each device.

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Where appropriate, a shunt device and/or a compensating antenna, connected through a series device, is placed to eliminate the potential for charging damage.

The invention adds the series devices and conductive features to balance the antenna affects due to via configuration differences. Series devices and conductive features may be added to compensate for other differences such as proximity of conductive lines, uneven positioning within the chip, etc. In addition, other devices such as large FETs can be added to compensate for other unbalances, including parasitic capacitance. The compensating devices and conductive shapes are added to the circuit to eliminate the potential for charging damage between the source/drain and the gate of the SOI transistor. Further, these devices and compensating structures perform no function other than eliminating the potential for charging damage.

Thus, as shown above, neither Utsunomiya nor Kato teach or suggest that "said shunt and said compensating conductor perform no function other than eliminating said potential for charging damage" as defined by independent claim 1 or "said series device and said compensating conductor perform no function other than eliminating said potential for charging damage" as defined by independent claim 7. Thus, it is Applicants position that independent claims 1 and 7 are patentable over Utsunomiya and Kato. Similarly, dependent claims 2-6 and 8-12 are also patentable, by virtue of the additional features the dependent claims defined and by virtue of their dependency from a patentable independent claim. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdrawn this rejection.

II. Formal Matters and Conclusion

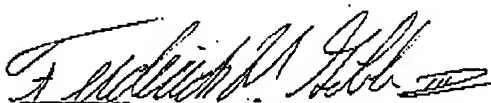
With respect to the objection to the Abstract, the Abstract has been amended to overcome this objection. In view of the foregoing, Applicants submit that claims 1-12 and 37-40, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

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Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,



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